UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,874	09/10/2003	Samir Kumar	D/A2425	3222

25453 7590 04/15/2005

PATENT DOCUMENTATION CENTER
XEROX CORPORATION
100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR
ROCHESTER, NY 14644

EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/658,874	KUMAR ET AL.	
	Examiner	Art Unit	
	Ramsey Zacharia	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) 22 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 23-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 April 2005 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claim 22 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 22 September 2004.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. Support in the disclosure as originally filed cannot be found for the matrix being present in an amount of from about 1 to about 10 weight percent based on the weight of the polymer coating.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 is rendered indefinite because it is unclear if the polymer coating contains: (1) either conductive polypyrrole in a carbon black matrix *or* polyaniline in a carbon black matrix, or (2) both conductive polypyrrole in a carbon black matrix *and* polyaniline in a carbon black matrix. Lines 2-3 of the claim state that the coating "contains a conductive polypyrrole contained in a carbon black matrix, or polyaniline contained in a carbon black matrix" while the newly added limitation on lines 7-10 states "wherein said polypyrrole is present in an amount of from about 0.1 to about 5 percent by weight of said polymer coating, and wherein said polyaniline is present in an amount of from about 0.1 to about 5 percent by weight of said polymer coating."

Claims Language

8. For the purpose of examination, claim 1 is taken to contain either about 0.1 to about 5 wt% conductive polypyrrole in a carbon black matrix or about 0.1 to 5 wt% polyaniline in a carbon black matrix, with each percentage based on the weight of the polymer coating.

Claim Rejections - 35 USC § 102

9. Claims 1-6, 9-21, 23, 24, and 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach a carrier comprising a core and a polymer coating which comprises a mixture of a coating polymer and a conductive polymer (column 5, lines 47-49). The coating polymer may be formed of a mixture of polymers, including polymers that are not in close proximity in the triboelectric series and mixtures of about 2 to 7 polymer (column 5, lines 49-55). The conductive polymer may comprise as little as about 5 wt% of the total weight of the coating (column 5, line 66-column 6, line 5). The core has a diameter of about 30 to 100 μm (column 6, lines 6-7). The core is made of iron, steel, or a ferrite (column 6, lines 7-8). The coating polymer may be, for example, a styrene polymer, polymethyl methacrylate, or a mixture of polymethyl methacrylate and polytrifluoroethyl methacrylate (column 6, lines 8-19). The polymer coating is present in an amount of from about 0.5-10 wt% or about 1-5 wt% of the carrier (column 6, lines 19-22). The carrier may have a conductivity of about 10^{-15} to 10^{-4} $(ohm\text{-}cm)^{-1}$ and a triboelectric charge value of about -60 to 60 microcoulombs/gram (column 6, lines 22-26). The carrier may be combined with a toner to produce a developer (column 7, lines 12-13). The toner may comprise a thermoplastic resin, colorant, and other optional components

(column 7, lines 15-18). The conductive polymer may be any of a number of commercially available conductive polymers (column 8, lines 62-64). Suitable commercially available conductive polymers include Eeonomer (column 9, lines 56-60), which is the same material used in the instant invention (see pages 13 and 14 of the instant specification, particularly page 14, lines 6-9 in which Eeonomer is described as being comprised of intrinsically conductive polypyrrole or polyaniline polymers deposited into carbon black matrix by an in situ polymerization.

Regarding claim 9, Drappel et al. do not teach the amount of carbon black present. However, Drappel et al. do teach using the same conductive material as is used in the instant invention (Eeonomer) and the carrier of Drappel et al. has the same conductivity and triboelectric charge values as that of the instant invention. Conductivity and triboelectric charge values are material properties that are functions of the type and amount conductive materials. Since the same conductivities and triboelectric charge values are obtained using the same material (Eeonomer), the amount of carbon black in the carrier of Drappel et al. should be the same as that recited in instant claim 9.

Claim Rejections - 35 USC § 103

10. Claims 1-21, 23, 24, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach all the limitations of claims 1-6, 9-21, 23, 24, and 26-30 as outlined above. Drappel et al. teach that the conductive polymer is present in an amount of from about 5 wt% to 70 wt% based on the weight of the coating. In the event that one skilled in the art would

not immediately envisage a coating comprising about 5 wt% of conductive polymer, it would have been obvious to select any value from the disclosed range, including about 5 wt% conductive polymer.

Regarding claims 7, 8, and 11, Drappel et al. do not teach that the polypyrrole has molecular weights as recited in claims 7, 8, and 31.

However, Drappel et al. do teach that the polyaniline as the conductive polymer may have a weight average molecular weight of about 10,000-400,000, about 20,000-100,000, or about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 (column 5, lines 56-62). Drappel et al. further disclose that polyaniline and polypyrrole are functionally equivalent materials for the purpose of their invention (column 7, lines 24-28).

One skilled in the art would be motivated to use a polypyrrole having a weight average molecular weight of about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 in place of the polyaniline having a weight average molecular weight of about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 taught by Drappel et al. since Drappel et al. teach the equivalence of polyaniline and polypyrrole.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509) in view of Viswanathan et al. (U.S. Patent 6,764,617).

Drappel et al. teach all the limitations of claim 25, as outlined above, except for the use of a polyaniline attached to lignin. However, Drappel et al. do teach that the polyaniline may be doped with an organic acid, preferably a sulfonic acid (column 8, lines 65-67).

Viswanathan et al. is directed to a composition comprising polyaniline doped with a lignosulfonic acid compound (column 1, lines 61-64). Lignosulfonic acid compounds are abundant and inexpensive (column 5, lines 15-16).

One skilled in the art would be motivated to use a lignosulfonic acid as the sulfonic acid of dopant Drappel et al. because it is inexpensive and known to be suitable for doping polyaniline.

Response to Arguments

12. Applicant's arguments filed 04 April 2005 have been fully considered but they are not persuasive.

The applicants argue that the claims are directed to a carrier wherein the conductive polymer is present in an amount of from about 0.1 to about 5 weight percent based on the weight of the polymer coating in contrast to the carrier of Drappel et al. wherein the conductive polymer is present in an amount of from about 5 to about 70 weight percent based on the weight of the polymer coating. The applicants further argue that the examples of Drappel et al. all contain polymer coatings wherein the conductive polymer is more than 10 weight percent of the coating.

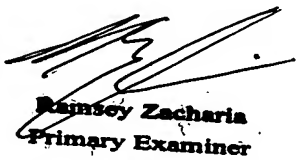
This is not persuasive for the following reasons. Drappel et al. explicitly teach a polymer coating containing about 5 wt% conductive polymer. This overlaps the claimed range at 5% as well as points above and below 5 wt%, since "about 5" includes values above and below 5. Furthermore, Drappel et al. is not limited to the examples disclosed therein because the teachings of a reference must be considered in its entirety and are not limited to specific working examples contained in it. See MPEP § 2123.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ramsey Zacharia
Primary Examiner
Tech Center 1700